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ABSTRACT

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This research was conducted to determine the of to which imitation can be employed in training student teacher Forty randomly selected subjects who had completed methods cou al movie teaching and were just beginning student teaching were divided no two groups. The first group was shown a 20-minute videotaped sson demonstration by a teacher selected for her predominant use of mances indirect verbal behavior. The second group was shown a neutral teraction about comprehension skills in reading which contained almost n Analysis Observation Schedule. Results showed a significant difference between the two groups in their use of indirect verbal behavior. These results support earlier findings on imitatiom. It is recommended that further research be done using more specific model behavior, showing the film several times, and experimenting with the relationship between video modeling and certain personality factors. (Author/RT)

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AN APPLICATION OF SOCIAL LEARNING THEORY IN AFFECTING CHANGE IN A GROUP OF STUDENT TEACHERS USING VIDEO MODELING TECHNIQUES

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INTRODUCTION

Price (1961), Perrodin (1961), McAulay (1965), and Moskowitz (1967) all represent instances in the literature indicating the influence of external forces on the behavior of student teachers. Student teachers and educators repeatedly have expressed the opinion that field experience is the most beneficial one although strong research evidence does not exist to substantiate such claims. (Newsome, et al., 1965) (Corrigan and Griswold, 1963) and (Reynard, 1964). In 1963, Flanders wrote that it was time for more analysis of what teaching acts cause what change; that with modern procedures more accurate data can be collected to provide for more refined analyses. It is becoming a reality.

This study is an experimental effort to apply social learning theory (Miller and Dollard, 1941) as a basis for hypothesized change in behavior through video taped models (Allen, 1967) as judged by Flanders Interaction Analysis (Amidon and Hough, 1967). As social learning theory has been interpreted and extended by Bandura and Walters (1963) and by Bandura (1965c), it was readily apparent that their positions with respect to no trial learning were significant extensions of that developed by Miller and Dollard (1941). The function of representational processes in observational learning (Bandura, 1965b) suggested that the observer of an act does not participate in overt performance during acquisition; that representational responses were elicited by the modeling stimuli and the observer learned the sequences of the behavior as a continuous chained event. When the observer was placed in a similar situation, he drew on his acquired observed responses to assist in selecting his own behavior. The research of Krumboltz (1964, 1967) supported that position as well as that which was reported by Bandura (Bandura and Huston, 1961; Bandura, et al., 1963a; Bandura and Rosenthal, 1966; and Walters, 1962).

Video taped techniques have been employed successfully in pre-service education (McDonald, et al, n.d.; Burleigh and Peterson, 1967; Carlton, 1966; Olivero, 1965; Baird, 1967; Popham, 1965; Allen, et al, 1967). Goodkind (1968) attempted to employ an interaction observation scheme in studying the effects of video versus non-video taping. Further uses of observational techniques as a criteria were reported by Soar (1968), Weber (1968), and Emmers (1968).

HYPOTHESES

H_1: A video taped model demonstrating indirect teacher verbal behavior is more successful in eliciting indirect teacher verbal behavior from a group of student teachers than is a neutral movie as indicated by the I/D ratio of Flanders Interaction Analysis observation schedule.

H_2: Video taped model > neutral movie as indicated by the Revised I/D ratio.

METHOD

Subjects. Forty female subjects were randomly selected (Meyer, 1967) from the total population of students enrolled in their first methods course. It was also the beginning of a total year of student teaching experience while the S's were enrolled in elementary education. The S's were considered by the University to be either first or second semester juniors who also had completed most, if not all, of their formal liberal arts prerequisites for courses in education. The S's were twenty or twenty-one years of age with the exception of three who were older. Prior exposure to direct classroom experience was estimated to be minimal, consisting only of three weeks of pre-student teaching observation and one week of actual experience in the teaching of reading. This was considered to be an absolute minimum in which to build rapport with the students in the classroom and to begin to feel comfortable in the new role as a classroom teacher, but not long enough to be considered an intervening variable.

Model. A supervisor of student teachers was selected as the video model. She had had six years of teaching experience. She was observed in the classroom prior to her selection as a supervisor and it was noted that she practiced a definite indirect pattern of influence as a normal procedure. She was selected to prepare a video taped lesson in which the predominate teacher behavior was indirect teacher verbal behavior. Interaction analysis of the video taped sequence which was used in this research verified her ability to employ indirect verbal behavior.

The video tape which was chosen for the study involved the model interacting with a middle ability group of fourth grade students in a reading discussion lesson. Although several tapes were made in a variety of settings and with different groups of children, the particular tape provided a very natural setting and climate within which the reading group was filmed.

The model led the group in a discussion of a story which was recently read with the specific strategy of involving the students as much as possible. The video tape included the entire discussion of approximately twenty minutes.

Design. The Pretest-Posttest Control Group Design was used. A 20-minute video tape of the model teacher using almost completely a strategy designed to score high on the Flanders Indirect/Direct ratio was shown to 20 student teachers. Another 20 S's were exposed to a neutral movie. All S's were given an objective in reading for which to prepare and teach a lesson plan to their own elementary classes. The actual teaching of the 40 S's was audio taped and analyzed using Flanders I/D and Revised I/D ratios.

Procedure. The study was conducted as an integral part of the course entitled "The Teaching of Reading." In the normal practice, the students attended student teaching seminars during the same period of time. An

additional seminar was scheduled for each group in which the S's were told the Department of Elementary Education was interested in using new seminar procedures and new communication techniques.

A written assignment was given the students in which they were asked to prepare and teach a lesson plan to their students using the given objective:

> After reading the story (and you choose any story you wish), the pupils will be able to: 1) discuss how they feel about the main character(s), 2) tell what makes them feel as they do about the main character(s), and, with teacher guidance, 3) compare with others in the group their perception of the main character(s).

The assignment was carried out by all S's two days after treatment and was observed and audio recorded by their university supervisors.

Treatment group A was exposed to a 20-minute video of a teacher directing a reading discussion using the same objective given to the S's. Treatment group B was exposed to a neutral movie entitled Reading Improvement: Comprehension Skills. It was deliberately selected for its content and for its appropriateness as a neutral movie. It contained almost no interaction.

Data Collection and Analysis. Data were collected two times by audio tape recorder. Each S was recorded teaching a reading lesson during the first week of student teaching directly following the methods course in reading. Those initial data were gathered by a team of supervisors with the intent of establishing a base line for each student teacher and of ascertaining her pattern of interacting with pupils in her reading group.

The second audio was obtained exactly two days following the subjects' exposure to treatment. The procedure followed the pattern of the first recording except that the second time the focus was on recording the assigned lesson. The data were analyzed by the primary investigator.

INTER- AND INTRA-OBSERVER RELIABILITY:

An accepted method of computing reliability for inter-observer agreement while taking interaction analysis is by using Scott's coefficient. Scott's

coefficient, π is "the amount that two observers excluded chance agreement divided by the amount that perfect agreement excludes chance" (Flanders, 1967). The formulae for computing π are:

$$(1)\quad \pi = \frac{Po-Pe}{100-Pe}$$

where: Po is the proportion of agreement
Pe is the proportion of agreement expected by chance

$$(2)\quad Pe = \sum_{1=1}^{K} Pi^2$$

where: K = the number of categories
Pi is the proportion of tallies in percentage falling into each category.

Using the above formula, the primary investigator obtained a reliability coefficient of .89 on a randomly selected training tape. A second supervisor of students obtained a reliability coefficient of .82 on the same tape. These coefficients were accepted as sufficiently high to proceed with the study data.

To establish specific inter-observer reliability on the study data, a tape from the post test was arbitrarily selected. An inter-observer reliability coefficient of .88 was achieved.

A tape was arbitrarily selected from the pre-test data during the first week of analysis for use in determining intra-experimenter reliability. The tape was analyzed by the experimenter three times. An initial reliability coefficient of .85 was obtained when comparing the first analysis with a second. When comparing the second analysis with the third, a second coefficient of .94 was obtained.

RESULTS:

H_1 was accepted. An analysis of variance was used to determine if the treatment groups were drawn from significantly different populations on pre-

and post- test data. As illustrated in Table 1, the F ratio on the pre-test data was not significant when comparing the video group with the movie group using Flanders I/D. However, the F ratio was significant when comparing the video and movie groups on post test data.

TABLE 1

Analysis of Variance of Pre- and Post Test Data for a Comparison of the Video Group With the Movie Group Using Flanders I/D

Source	df	Sum of Squares	Mean Square	F
PRE				
Treatments	1	.83	.83	2.08*
Within	35	13.96	.40	
Total	36	14.79		
POST				
Treatments	1	86.12	86.12	16.28**
Within	35	185.1	5.29	
Total	36	271.2		

* not significant at the .05 level
** significant at the .01 level

An analysis of covariance was used to determine between which groups differences were observed after the scores had been adjusted for pre-test differences. In applying the analysis of covariance, Table 2, the F ratio of 16.25 clearly indicated significance at the .01 level.

TABLE 2

Analysis of Covariance of Pre- and Post Test Data for a Comparison of the Video Group with the Movie Group Using Flanders I/D

Source	df	Sum of Squares	Mean Square	F
Treatments	1	87.49	87.49	16.25*
Within	34	183.1	5.38	
Total	35	270.5		

* significant at the .01 level

H_2 was accepted. Again, as with H_1, the analysis of variance was used to determine whether the two groups were drawn from statistically different populations. As indicated in Table 3, the group was considered statistically similar with an F of .61 on the pre-test data but dissimilar on the post-test data as shown by the F of 7.44.

TABLE 3

Analysis of Variance of Pre- and Post-Test Data for a Comparison of the Video Group With the Movie Group Using Flanders Revised I/D

Source	df	Sum of Squares	Mean Square	F
		PRE		
Treatments	1	.50	.50	.61*
Within	35	28.53	.82	
Total	36	29.03		
		POST		
Treatments	1	824.3	824.3	7.44**
Within	35	3,878.0	110.8	
Total	36	4,702.0		

* not significant at the .05 level
** significant at the .05 level

As shown in Table 4, the analysis of covariance for H_2 indicated significance at the .05 level.

TABLE 4

The Analysis of Covariance of the Pre-test and Post-test Data for a Comparison of the Video Group and the Movie Group Using Flanders Revised I/D

Source	df	Sum of Squares	Mean Square	F
Treatments	1	665.4	665.4	6.54*
Within	34	3,462.0	101.8	
Total	35	4,127.0		

* significant at the .05 level

DISCUSSION

The results of this study showed that a single twenty minute exposure to a model demonstrating a specific set of behavior produced a significant amount of the same behavior in the student teachers who observed it. These positive results tend to support the research of Bandura, et al., (1961, 1963_a), Bandura and Huston (1961), Bandura and McDonald (1963), and Krumboltz (1964, 1967) that imitation could and did occur by employing video taped techniques.

The results of this study provide a basis for research to be continued in the use of modeling as a means of influencing complex behavior. Future research is suggested.

1) It is recommended that a video taped model demonstrating a specific technique or specific set of behavior be shown to an experimental group on several occasions. Such a treatment may enhance the lasting effect. It may also serve to supplement whatever cooperating teacher, supervisor, inter-subject communication, or other influence there may be between the post-test and the follow-up test.

2) It is recommended that a video taped model demonstrating a specific set of behavior be shown to a group of subjects while, in addition, comments are made by an authority about the specific behavior. This recommendation is made on the basis that specific cues may be more meaningful if pointed out to the viewers than if simply viewed without attention being directed to the specific cues.

3) It is recommended that a future study be done in which each subject is shown the video on an individual basis. The recommendation is based on the argument that if each subject is treated separately, then the factors at work in a group showing, which may or may not influence the treatment effect, are controlled. It may be argued that this study used only an N of two because the treatment was given only two times;

that each session had its own set of factors which may have affected the entire group in a specific manner.

4) It is recommended that highly specific behavior be modeled. The results of this study indicated significant differences on rather gross measures of I/D and revised I/D. Perhaps the differences would be greater if the treatment and measures were more specific.

5) It is recommended that video taped modeling be experimentally manipulated with certain personality factors. This recommendation is made because of the strong indication in this study that some of the student teachers were more affected than others. It is suggested that open-closed, creative-rigid, and dependent-independent dichotomies be identified in a group of subjects and then paired with video-non video treatment. It is also suggested that self concept be paired with video-non video treatment.

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